IN THE CLAIMS:

Please cancel claims 1-5 and 23. Please also amend claim 12, 13, and 15-18, and add new claims 24-29 as indicated in the following complete listing of claims:

Claims 1-11 have been cancelled.

12. (currently amended) A multiplex communication system comprising:

a multiplexer which divides a carrier pulse train having a predetermined amplitude into N pulse trains, modulates said N pulse trains by N data signals, respectively, to produce N modulated pulse trains, and time-division multiplexes said N modulated pulse trains to produce a multiplexed modulated pulse train, said multiplexer comprising an amplitude adjuster which implements an amplitude adjustment so that said N modulated N pulse trains have different amplitudes from each other; and

a demultiplexer which comprises

a transmitting/blocking section having an input port that receives the multiplexed modulated pulse train, a control signal corresponding to one of the N modulated pulse trains, and an output port that emits said one of the N modulated pulse trains corresponding to the control signal;

a reference section which receives the multiplexed modulated pulse train and generates a reference signal representing the average amplitude of pulses in the N modulated pulse trains;

a detection section which generates a detection signal with information identifying said one of the N modulated pulse trains that is emitted by the transmitting/blocking section;

a judgment section which compares the reference signal to the detection signal and generates a judgment signal; and

a control section which generates the control signal for the transmitting/blocking section on the basis of at least the judgment signal and ~~a~~ an electrical select signal that designates one of the modulated pulse trains.

13. (currently ~~amended~~) A demultiplexer for a time-division multiplexed pulse train that contains a plurality of modulated pulse trains which are generated by modulating un-modulated pulse trains with data signals, the un-modulated pulse trains having different pulse amplitudes, comprising:

a transmitting/blocking section having an input port that receives the multiplexed pulse train, a control signal corresponding to one of the modulated pulse trains, and an output port that emits the modulated pulse train corresponding to the control signal;

a reference section which receives the multiplexed pulse train and generates a reference signal representing the average amplitude of pulses in the modulated pulse trains;

a detection section which generates a detection signal with information identifying the modulated pulse train emitted by the transmitting/blocking section;

a judgment section which compares the reference signal to the detection signal and generates a judgment signal; and

a control section which generates the control signal for the transmitting/blocking section on the basis of at least the judgment signal and ~~a~~ an electrical select signal that designates one of the modulated pulse trains.

14. (previously presented) The demultiplexer of claim 13, further comprising a clock extractor that receives the multiplexed pulse train and generates a clock signal from

it, and a divider that divides the clock signal, the divided clock signal being supplied to the control section.

15. (currently ~~amended~~) The demultiplexer of claim ~~14~~ 16, wherein the control section ~~comprises means for selectively shifting~~ selectively shifts the phase of the divided clock signal or ~~maintaining~~ maintains the phase substantially unchanged, ~~the means being responsive~~ in response to the select signal and the judgment signal.

16. (currently ~~amended~~) ~~The~~ A demultiplexer ~~of claim 14,~~ for a time-division multiplexed pulse train that contains a plurality of modulated pulse trains which are generated by modulating un-modulated pulse trains with data signals, the un-modulated pulse trains having different pulse amplitudes, comprising:

a transmitting/blocking section having an input port that receives the multiplexed pulse train, a control signal corresponding to one of the modulated pulse trains, and an output port that emits the modulated pulse train corresponding to the control signal;

a reference section which receives the multiplexed pulse train and generates a reference signal representing the average amplitude of pulses in the modulated pulse trains;

a detection section which generates a detection signal with information identifying the modulated pulse train emitted by the transmitting/blocking section;

a judgment section which compares the reference signal to the detection signal and generates a judgment signal;

a control section which generates the control signal for the transmitting/blocking section on the basis of at least the judgment signal and ~~a~~ an electrical select signal that designates one of the modulated pulse trains: and

a clock extractor that receives the multiplexed pulse train and generates a

clock signal from it, and a divider that divides the clock signal, the divided clock signal being supplied to the control section,

wherein the control section comprises a controller that receives the judgment signal and the select signal, a phase shifting component that receives the divided clock signal and an output signal from the controller and that generates a pulse-sieving signal as an output, a phase adjuster that adjusts the phase of the pulse-sieving signal, and a drive amplifier that receives the phase-adjusted pulse-sieving signal and generates the control signal from it.

17. (currently amended) The demultiplexer of claim ~~13~~ 16, wherein the pulses of the pulse trains are optical pulses and the transmitting/blocking section is an electric field absorption optical modulator, the detection section receiving a signal from the modulator.

18. (currently amended) The demultiplexer of claim ~~13~~ 16, wherein the pulses of the pulse trains are optical pulses and the transmitting/blocking section is an optical modulator employing a Mach-Zehnder interferometer

19. (previously presented) The demultiplexer of claim 18, further comprising a detector that detects the modulated pulse train emitted by the optical modulator, the detection section receiving a signal from the optical modulator.

20. (previously presented) The demultiplexer of claim 13, wherein the pulses of the pulse trains are optical pulses, where two pulse trains are time-division multiplexed to form the multiplexed pulse train, the two pulse trains having pulse periods that are substantially the same, and further comprising means for generating a sinusoidal signal having a period that is substantially the same as the pulse period of the pulse trains.

21. (previously presented) The demultiplexer of claim 20, wherein the means comprises a clock extractor that receives the multiplexed pulse train, and a divide by two divider that divides an output signal from the clock extractor to generate the sinusoidal signal.

22. (previously presented) The demultiplexer of claim 21, wherein the control section comprises means, responsive to the judgment signal and the select signal, for selectively inverting or not inverting the sinusoidal signal.

Claim 23 has been cancelled.

24. (new) The multiplex communication system of claim 12, wherein N is two, and wherein the transmitting/blocking section blocks one of the two pulse trains and transmits the other to the output port of the transmitting/blocking section.

25. (new) The multiplex communication system of claim 24, wherein the detection section receives an electrical signal that is generated by the transmitting/blocking section from energy absorbed from the blocked pulse train.

26. (new) The multiplex communication system of claim 24, wherein the detection section receives an optical signal diverted from the pulse train that is transmitted to the output port of the transmitting/blocking section.

27. (new) The demultiplex communication system of claim 13, wherein N is two, and wherein the transmitting/blocking section blocks one of the two pulse trains and transmits the other to the output port of the transmitting/blocking section.

28. (new) The demultiplex communication system of claim 27, wherein the detection section receives an electrical signal that is generated by the transmitting/blocking section from energy absorbed from the blocked pulse train.

29. (new) The demultiplex communication system of claim 27, wherein the detection section receives an optical signal diverted from the pulse train that is transmitted to the output port of the transmitting/blocking section.